

REMARKS/ARGUMENTS

Applicants appreciate the thorough examination of the present application, as evidenced by the first Official Action. The Official Action rejects Claims 1, 2, 6, 13, 14, 18, 25, 26, 30, 37, 38 and 42 under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 7,170,932 to Vetro et al. The Official Action then rejects the remaining claims, namely Claims 3-5, 7-12, 15-17, 19-24, 27-30, 31-36, 39-41 and 43-48 under 35 U.S.C. § 103(a) as being unpatentable over Vetro, in view of one of U.S. Patent No. 5,635,985 to Boyce et al., or U.S. Patent No. 6,011,870 to Jeng et al. As explained below, Applicants respectfully submit that the claimed invention is patentably distinct from Vetro, Boyce and Jeng, taken individually or in any proper combination. Nonetheless, Applicants have amended various ones of the pending claims to further clarify the claimed invention, cancelled Claims 13-20 and added new dependent Claims 49-51 to recite further patentable aspects of the present invention. In view of the amendments to the claims, the cancelled and new claims, and the remarks presented herein, Applicants respectfully request reconsideration and allowance of all of the pending claims of the present application.

A. Claims 1, 2, 6, 18, 25, 26, 30, 37, 38 and 42 are Patentable

As indicated above, the first Official Action rejects Claims 1, 2, 6, 13, 14, 18, 25, 26, 30, 37, 38 and 42 as being anticipated by Vetro. Briefly and with reference to FIG. 17, Vetro discloses a transcoder including a decoder (1703) and a partial encoder (1704). The decoder receives an input signal (1701) in the form of a sequence of frames of a compressed video signal bitstream, and decodes them into frames. The decoded frames are stored in a first frame buffer (1760) for motion compensation (1740) such that, during the decoding, full resolution motion vectors of each previous decoded frame are added (1780) to motion vectors of the next decoded frame. Then, once the decoder has produced a decoded frame, the frame is downsampled by a down-conversion block (1750). The reduced resolution frames are stored into a second frame buffer (1760) for motion compensation (1770) during the partial encoding (1704), with motion compensated predictions of the previous reduced resolution frame being subtracted (1782) from the current reduced resolution frame for motion compensation during the partial encoding (1704).

According to one aspect of the claimed invention, as reflected by amended independent Claim 1, a transcoder is provided for transcoding data including a group of macroblocks representing a frame of data. As recited, the transcoder includes a decoder, downsampler and encoder. The decoder is configured to decode input data to thereby generate prediction error and decoded image data in a spatial domain. The downsampler, then, is configured to selectively downsample the prediction error or the decoded image data in a first direction and/or a different, second direction to generate a downsampled macroblock in the spatial domain. And the encoder is configured to encode the downsampled macroblock into output data.

In contrast to amended independent Claim 1, Vetro does not teach or suggest a downsampler configured to selectively downsample prediction error or decoded image data in first and/or second directions to generate a downsampled macroblock in the spatial domain, which is thereafter encoded into output data. The Official Action cites Vetro for downsampling decoded frames. Even if one could argue (expressly without admission) that Vetro discloses downsampling decoded frames, however, Vetro (as well as Boyce and Jeng) does not teach or suggest any selectivity as to its downsampling. That is, Vetro does not teach or suggest selectively downsampling prediction error or decoded image data. Further, and similar to Vetro, Applicants respectfully submit that neither Boyce nor Jeng, taken individually or in any proper combination, teach or suggest the aforementioned feature of amended independent Claim 1.

Applicants therefore respectfully submit that amended independent Claim 1, and by dependency Claims 2-12 and 49, is patentably distinct from Vetro. Applicants also respectfully submit that amended independent Claims 25 and 37 recite subject matter similar to that of amended independent Claim 1. As such, Applicants respectfully submit that amended independent Claims 25 and 37, and by dependency Claims 26-32, 37-44, 50 and 51, are also patentably distinct from Vetro, for at least the reasons given above with respect to amended independent Claim 1.

For at least the foregoing reasons, Applicants respectfully submit that the rejection of Claims 1, 2, 6, 13, 14, 18, 25, 26, 30, 37, 38 and 42 as being anticipated by Vetro is overcome (or moot by virtue of the cancellation of Claims 13-20).

B. Claims 3-5, 7, 9-12, 21-24, 27-29, 31, 33-36, 39-41, 43 and 45-48 are Patentable

The Official Action rejects Claims 3-5, 7, 9-12, 15-17, 19, 21-24, 27-29, 31, 33-36, 39-41, 43 and 45-48 as being unpatentable over Vetro, in view of Boyce.

1. Claims 3-5, 7, 9-12, 27-29, 31, 39-41 and 43 are Patentable

As explained above, amended independent Claims 1, 25 and 37, and by dependency Claims 2-12, 26-32, 37-44 and 49-51, are patentably distinct from Vetro. Applicants respectfully submit that Boyce does not cure the deficiencies of Vetro. That is, even considering Boyce, neither Vetro nor Boyce, taken individually or in combination, teach or suggest the aforementioned downsample prediction error in first and/or second directions to generate a downsampled macroblock in the spatial domain, which is thereafter encoded into output data. And one skilled in the art still would not be motivated to modify Vetro with the teachings of Boyce to disclose the claimed invention. Thus, for at least the reasons given above with respect to amended independent Claims 1, 25 and 37, Claims 3-5, 7, 9-12, 27-29, 31, 39-41 and 43 are also patentably distinct from Vetro, in view of Boyce.

2. Claims 21-24, 33-36 and 45-48 are Patentable

Initially, Applicants note that the Official Action fails to establish *prima facie* anticipation or obviousness of at least independent Claims 21, 33 and 45, and by dependency Claims 22-24, 34-36 and 46-48. As stated in the MPEP, anticipation of the claimed invention requires the cited reference to explicitly or inherently teach each and every element of the claimed invention. MPEP § 2131. Likewise, all of the elements of a claimed invention must be taught or suggested by the prior art to establish *prima facie* obviousness of a claimed invention. MPEP § 2143.03 (*citing In re Royka*, 490 F.2d 981 (CCPA 1974)). In the instant case, however, the Official Action fails to allege prior art, including any of Vetro, Boyce or Jeng, or any other prior art, that teach or suggest the limitations of at least Claims 21, 33 and 45.

More particularly, for example, nowhere does the Official Action allege any prior art, including any of Vetro, Boyce or Jeng, that teach or suggest decoding input data to thereby downsample the input data in a first direction, and downsampling the decoded image data in a

different, second direction, as originally recited by amended Claims 21, 33 and 45. Applicants note that the Official Action summarily rejects those claims (as well as Claim 9) as including limitations similar to Claims 1 and 3, and therefore rejects those claims for the same reasons. Contrary to this assertion of the Official Action, however, Applicants respectfully submit that nowhere did or does either of Claims 1 or 3 recite decoding data to downsample it in one direction, and then downsampling the decoded data in another direction, as originally recited by amended Claims 21, 33 and 45.

Notwithstanding the foregoing, Applicants respectfully submit that neither Vetro nor Boyce (nor Jeng), taken individually or in any proper combination, teach or suggest decoding input data including downsampling the input data in a first direction, and then downsampling the decoded data (or prediction error generated during the decoding) in a different, second direction. That is, neither Vetro nor Boyce (nor Jeng), taken individually or in any proper combination, teach or suggest decoding input data to thereby (generate prediction error and decoded image data and) downsample the input data in a first direction, and downsampling the prediction error or decoded image data in a different, second direction to generate a downsampled macroblock, which is then encoded into output data, as recited by amended independent Claims 21, 33 and 45.

(a) Claims 22, 34 and 46

Applicants further respectfully submit that various ones of dependent Claims 22-24, 34-36 and 46-48 recite features further patentably distinct from Vetro and Boyce (and Jeng), taken individually or in combination. For example, similar to amended independent Claim 1, dependent Claims 22, 34 and 46 recite selectively downsample prediction error or decoded image data. And as explained above with respect to amended independent Claim 1, Vetro (as well as Boyce and Jeng) does not teach or suggest selectively downsampling prediction error or decoded image data.

In view of the above, Applicants respectfully submit that the rejection of Claims 3-5, 7, 9-12, 15-17, 19, 21-24, 27-29, 31, 33-36, 39-41, 43 and 45-48 as being unpatentable over Vetro, in view of Boyce is overcome (or moot by virtue of the cancellation of Claims 13-20).

C. Claims 8, 20, 32 and 44 are Patentable

The Official Action rejects Claims 8, 20, 32 and 44 as being unpatentable over Vetro, in view of Jeng. As explained above, amended independent Claims 1, 25 and 37, and by dependency Claims 2-12, 26-32, 37-44 and 49-51, are patentably distinct from Vetro. Applicants respectfully submit that Jeng does not cure the deficiencies of Vetro. That is, even considering Jeng, neither Vetro nor Jeng, taken individually or in combination, teach or suggest the aforementioned downsample prediction error in first and/or second directions to generate a downsampled macroblock in the spatial domain, which is thereafter encoded into output data. And one skilled in the art still would not be motivated to modify Vetro with the teachings of Jeng to disclose the claimed invention. Thus, for at least the reasons given above with respect to amended independent Claims 1, 25 and 37, Claims 8, 20, 32 and 44 are also patentably distinct from Vetro, in view of Jeng.

In view of the above, Applicants respectfully submit that the rejection of Claims 8, 20, 32 and 44 as being unpatentable over Vetro, in view of Boyce is overcome (or moot by virtue of the cancellation of Claims 13-20).


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CONCLUSION

In view of the amendments to the claims, the cancelled and new claims, and the remarks presented above, Applicants respectfully submit that the present application is in condition for allowance. As such, the issuance of a Notice of Allowance is therefore respectfully requested. In order to expedite the examination of the present application, the Examiner is encouraged to contact Applicant s' undersigned attorney in order to resolve any remaining issues.

It is not believed that extensions of time or fees for net addition of claims are required, beyond those that may otherwise be provided for in documents accompanying this paper. However, in the event that additional extensions of time are necessary to allow consideration of this paper, such extensions are hereby petitioned under 37 CFR § 1.136(a), and any fee required therefore (including fees for net addition of claims) is hereby authorized to be charged to Deposit Account No. 16-0605.

Respectfully submitted,


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